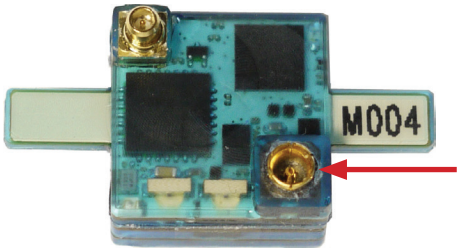
W2100-HS8-ES2-EXT-0.5mA Headstage

Advantages

- The headstage is equipped with two dedicated channels for electrical stimulation.
- The signal-to-noise ratio is excellent and most important, independent from the distance between sender and receiver.
- The headstage is additionally equipped with a triaxial gyroscope and a triaxial accelerometer by default.

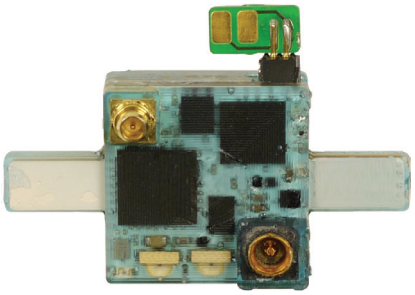
W2100 Headstage with two electrical Stimulation Channels for Use with the W2100-System



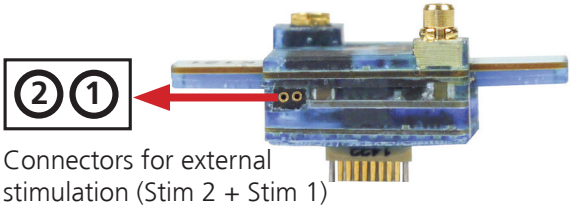
W2100-HS8-ES2-EXT top side
Please use the connector for the storage battery in the lower right for orientation of the headstage.

Adapter for External Stimulation

The adapter for external stimulation has to be connected magnet to magnet to the headstage. Please solder a connection wire to the pads provided on the adapter.



External Connectors for Electrical Stimulation



Connectors for external stimulation (Stim 2 + Stim 1)

Connector from Mill-Max 1 mm Pitch 861-13-050-10-002000 + Magnet cuboid Maqna QA-3x1x1-N45-N on the headstage mates with Mill-Max 860-10-050-10-002000 + Magnet cuboid Maqna QA-3x1x1-N45-N.

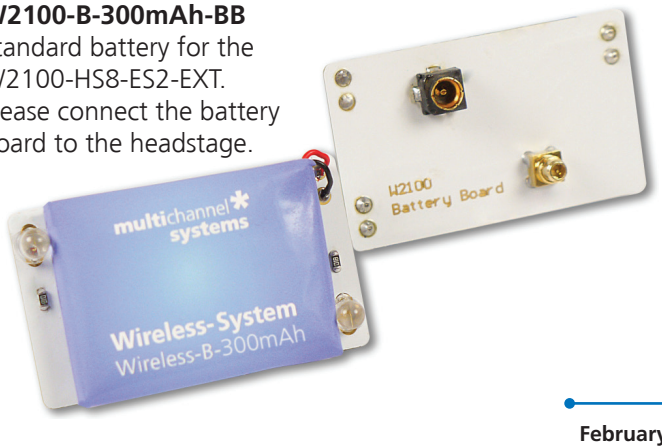
Gyroscope and Accelerometer

The W2100 headstage is equipped with triaxial gyroscope and accelerometer sensors, which allow synchronisation with electrophysiological data.

Applications

The W2100 headstage is the ideal solution for the measurement of spikes, LFP, EEG, ECG, EMG, and ECoG. Additional inputs to the interface board allow the synchronization of the data with external devices. Use the two dedicated stimulation channels for recording and electrical stimulation simultaneously.

W2100-B-300mAh-BB
Standard battery for the W2100-HS8-ES2-EXT.
Please connect the battery board to the headstage.



February 2020

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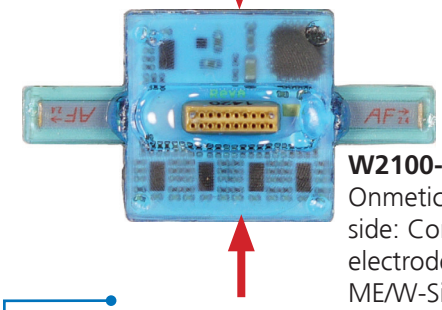
W2100-HS8-ES2-EXT-0.5mA Headstage

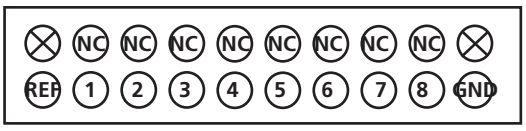
Important: To handle the headstage, please touch the body, but not the antennae.



W2100-HS8-ES2-EXT with Onmetics connector bottom side: Connector for the electrode probe or for the ME/W-Signal Generator.

W2100 Headstage with Omnetics Connector
A79039-001 (NSD-18-DD-GS, female 2 guide posts)
Diagram of the bottom side with pin layout

⊗	Guide post
NC	Not connected
1 to 8	Recording electrodes
GND	Ground
REF	Reference



Storage battery connector on the opposite side for orientation.

Connector for this Headstage
Omnetics A79039-001
This Omnetics mate with Omnetics such as:
Through Hole:
A79038-001 (NPD-18-DD-GS
Horizontal Surface Mount:
A79040-001 (NPD-18-AA-GS
Vertical Surface Mount:
A79042-001 (NPD-18-VV-GS)
Cable:
A79044-001 (NPD-18-WD-18.0-C-GS)

Technical Specifications

Technical Specifications

Number of recording channels	8
Number of stimulation channels	2
Weight (without battery)	± 3.8 g
Dimensions (W x D x H) w/o antenae	15.5 mm x 15.5 mm x 7.5 mm
Distance of wireless link	5 m and more under normal conditions

Amplifier

Bandwidth: To avoid aliasing effects, the low pass depends on the sampling frequency.

High pass	1 Hz (0.1 Hz on request)			
Low pass	400 Hz	800 Hz	1 kHz	5 kHz
@ Sampling rate	@ 1 kHz	@ 2 kHz	@ 5 kHz	@ 10 - 40 kHz

Gain	101
Input Impedance	1 GΩ ‖ 10 pF
Resolution	16 bit
Input voltage range	± 12.4 mV
Input noise	< 1.9 μV_{RMS}

Sampling rate (max.) in kHz	Number of channels simultaneously		
	2	**4**	**8**
Single Headstage Mode	40	40	25
Single Multi Mode	10	10	10

Stimulation

Output current	- 0.5 mA to + 0.5 mA @ ± 10 V compliance voltage
Rise time (10 - 66 %) current 0 - 100 µA	1.5 µs @ RL = 10 kΩ

Inertial Measurement Unit

Gyroscope, triaxial	± 8 g @ 16 bit resolution
Accelerometer, triaxial	1000 °/s @ 16 bit resolution

Software

Operating system	Windows ® 10, 8.1 (64 bit)
Data acquistion and analysis software	Multi Channel Suite Version 1.5.1 and higher

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